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LUSTRAN® ABS PG 298

ABS (SAE J1685: ABS0141)
Plating Grade

Description
Lustran ABS PG 298 resin is a plateable grade of ABS (acrylonitrile butadiene styrene) for use in automotive and general-purpose applications. This injection molding grade was designed specifically for improved thermocycle performance and outstanding plate adhesion. It provides a unique combination of flow and rigidity, with increased scratch resistance and increased resistance to deformation on plating racks.

Applications
Lustran ABS PG 298 resin is used in the automotive industry for plated grilles, wheel covers, exterior mirror housings, and exterior trim. It is also used for decorative parts in the appliance and lawn and garden markets. As with any product, use of Lustran ABS PG 298 resin in a given application must be tested (including field testing, etc.) in advance by the user to determine suitability.

Drying
Drying prior to processing is recommended in a desiccant dehumidifying hopper dryer. An inlet air dew point of -20°F (-29°C) or below is recommended to achieve a moisture content ≤ 0.1%. Typical drying conditions are 2 hours at 180°-190°F (82°-88°C). Drying for 4 hours at 160°-170°F (71°-77°C) is also adequate.

Processing
A reciprocating screw injection molding machine is preferred. A general-purpose screw with a 2.5:1 compression ratio is suggested. A minimum L/D ratio of 20:1 will ensure melt homogeneity.

To avoid excessive residence time in the barrel, volume and weight of the shot should be balanced against barrel capacity and injection stroke. A shot weight-to-machine capacity ratio of 0.5 to 0.75 is recommended.

A melt temperature of 500°-530°F (260°-280°C) is recommended; use the hotter end of this range to maximize thermal cycling performance. The recommended mold temperature is 120°-140°F (50°-60°C). The mold temperature should be as hot as possible without causing distortion for the development of maximum gloss, strength, and plate adhesion. The single most important molding variable for maximum plate adhesion is a slow mold-filling rate.

Typical processing parameters are noted below. Actual processing conditions will depend on machine size, mold design, material residence time, shot size, etc.

Typical Injection Molding Conditions*

Barrel Temperatures:	
Rear	470°– 485℉ (245°– 255℃)
Middle	480°– 495℉ (250°– 260℃)
Front	490°– 505℉ (255°–265℃)
Nozzle	490°– 505℉ (255°–265℃)
Melt Temperature	500°– 530℉ (260°– 280℃)
Mold Temperature	120°– 140℉ (50°– 60 ℃)
Injection Pressure	10,000 – 16,000 psi
Hold Pressure	50 – 75% of Injection Pressure
Back Pressure	50 – 100 psi
Screw Speed	Moderate
Injection Speed	Slow
Cushion	1/4 in max
Clamp	2 – 4 ton/in^2

Achieving uniform surface appearance on a molded part requires proper tool design, properly prepared and conditioned tool cavity surfaces, and preventive maintenance. Tool design should include adequate, properly sized, and properly designed vents. Preventive maintenance for tooling requires, but is not limited to, periodic inspection and cleaning of tool surfaces, actual cavity surfaces, and cavity vents. Additional information on processing and tooling may be obtained by contacting your INEOS ABS technical service representative.

Typical Properties* for Gray (703693) Resin	ASTM Test Method (Other)[a]	Units U.S. Conventional (SI Metric)	Lustran® PG298 ABS Resin	
			Unplated	Plated
General				
Specific Gravity	D 792		1.06	
Density	D 792	lb/in^3 (g/cm^3)	0.038 (1.06)	1.05 g/cm^3
Specific Volume	D 792	in^3/lb (cm^3/g)	26.1 (0.94)	0.95 cm^3/g
Mold Shrinkage	D 955	in/in (mm/mm)	0.004 - 0.006	
Melt Flow Rate at 220℃/10-kg Load	D 1238	g/10 min	19	
Melt Flow Rate at 230℃/3.8-kg Load	D 1238	g/10 min	5	
Mechanical				
Tensile Stress at Yield	D 638	lb/in^2 (MPa)	5,800 (40)	
	(ISO 527)	(MPa)	(43)	
Tensile Modulus	D 638	lb/in^2 (GPa)	402,000 (2.77)	1,100,000 (7.6)
Flexural Stress at Yield	D 790	lb/in^2 (MPa)	11,400 (79)	17,000 (117)
Flexural Modulus	D 790	lb/in^2 (GPa)	410,000 (2.83)	1,820,000 (12.5)
	(ISO 178)	(MPa)	(2,730)	
Impact Strength, Notched Izod:				
73℉ (23℃)				
0.125-in (3.2-mm) Thickness	D 256	ft-lb/in (J/m)	3.2 (171)	
4 x 10 mm Bar	(ISO 180/1A)	(kJ/m^2)	(14.4)	
-40℉ (-40℃)				
4 x 10 mm Bar	(ISO 180/1A)	(kJ/m^2)	(6.4)	
Rockwell Hardness	D 785	R Scale	110	
Thermal				
Deflection Temperature Under Load:	D 648			
Unannealed				
0.125-in (3.2mm) Thickness, 264 psi		℉ (℃)	183 (84)	
0.125-in (3.2mm) Thickness, 66 psi		℉ (℃)	196 (91)	
Unannealed, Compression-Molded				
0.5-in (12.7-mm) Thickness, 264 psi		℉ (℃)	209 (98)	290 (143)
0.5-in (12.7-mm) Thickness, 66 psi		℉ (℃)	217 (103)	
Annealed				
0.5-in (12.7-mm) Thickness, 264 psi		℉ (℃)	207 (97)	307 (153)
0.5-in (12.7-mm) Thickness, 66 psi		℉ (℃)	212 (100)	
Vicat Softening Temperature:				
1-kg Load, 120℃/Hour	D 1525	℉ (℃)	230 (110)	
50-N Load, 50℃/Hour	(ISO 306)	(℃)	(97.8)	
Flammability**				
Plaque Burn Rate:	(SAE J369)			
0.079 x 4 x 14 in (2 x 100 x 355mm)		in/min (mm/min)	1.9 (48)	

** These items are provided as general information only. They are approximate values and are not part of the product specifications.*

*** Flammability results are based on small-scale laboratory tests for purposes of relative comparison and are not intended to reflect the hazards presented by this or any other material under actual fire conditions.*

[a] *Conditions for testing ABS under ISO standards are specified in ISO 2580-2.*

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